Lecture 10 – CNN Applications and Tricks
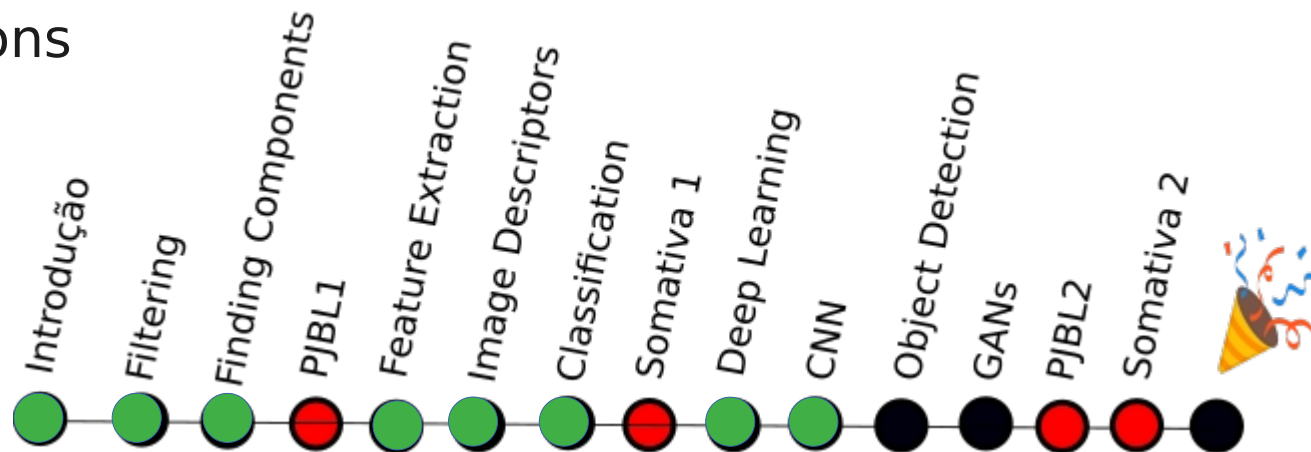
Prof. André Gustavo Hochuli

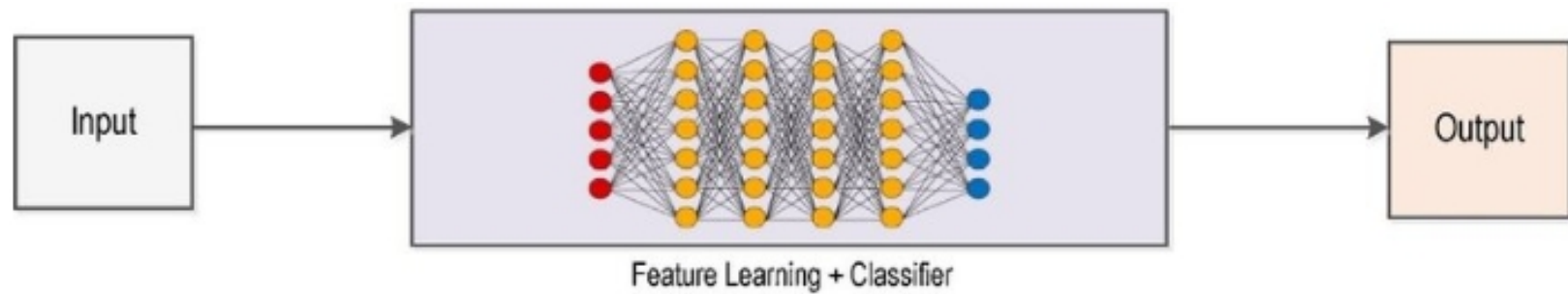gustavo.hochuli@pucpr.br
aghochuli@ppgia.pucpr.br

Topics

- Review of Lecture 09

- Convolutional Neural Network

  - Basic Concepts

  - Data Augmentation
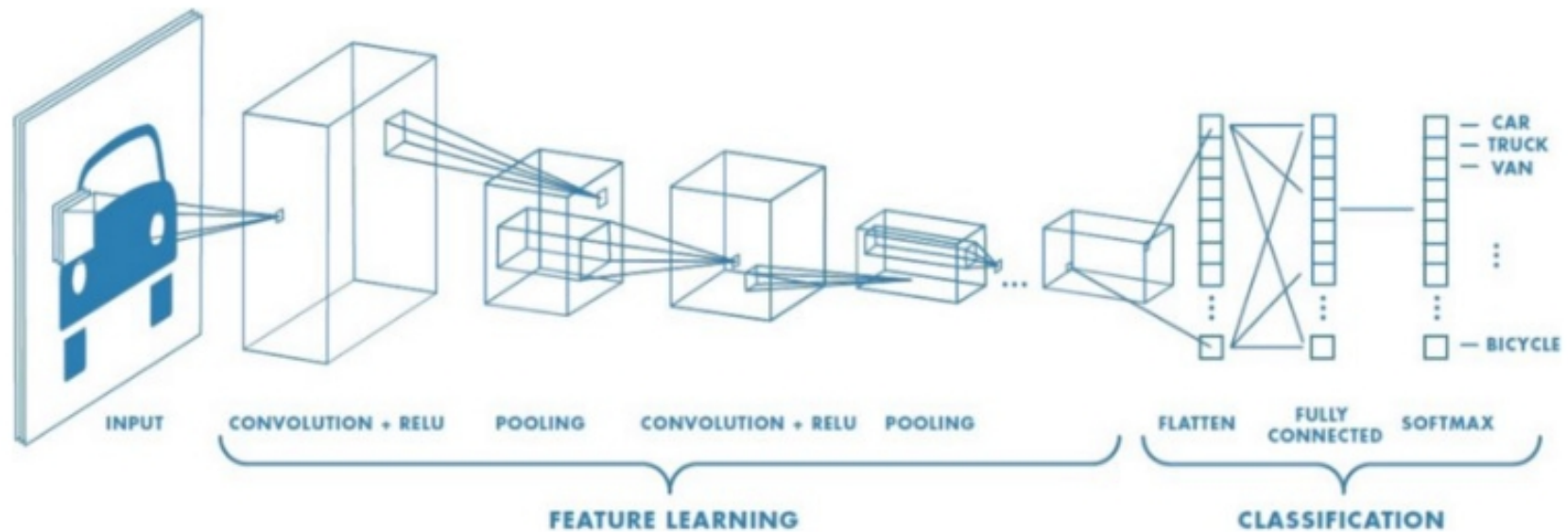
  - Transfer-Learning

  - Applications

- Practice

Deep Learning Pipeline
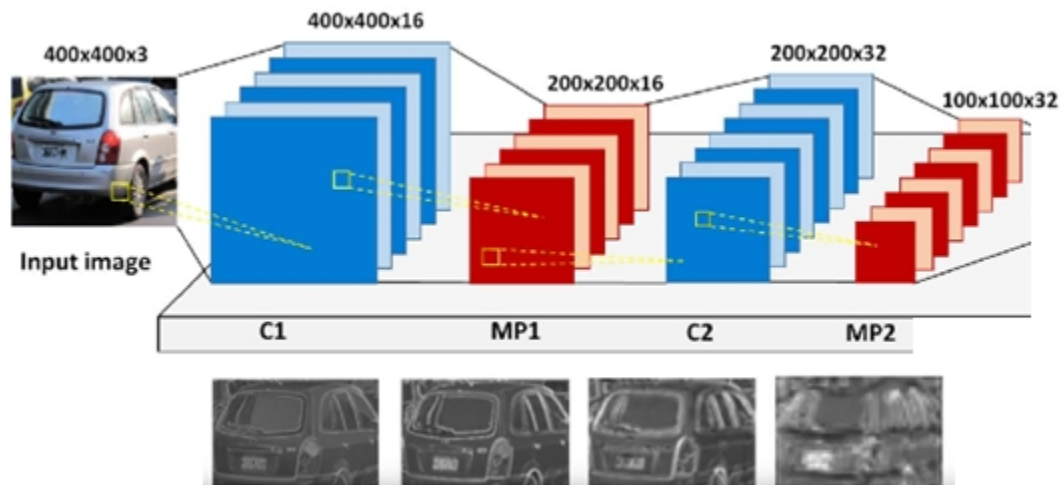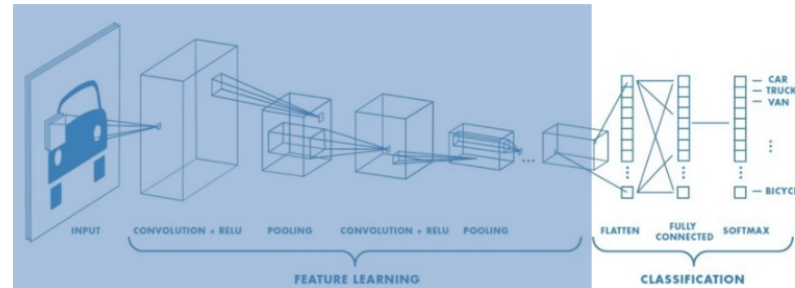

Feature Learning + Classifier
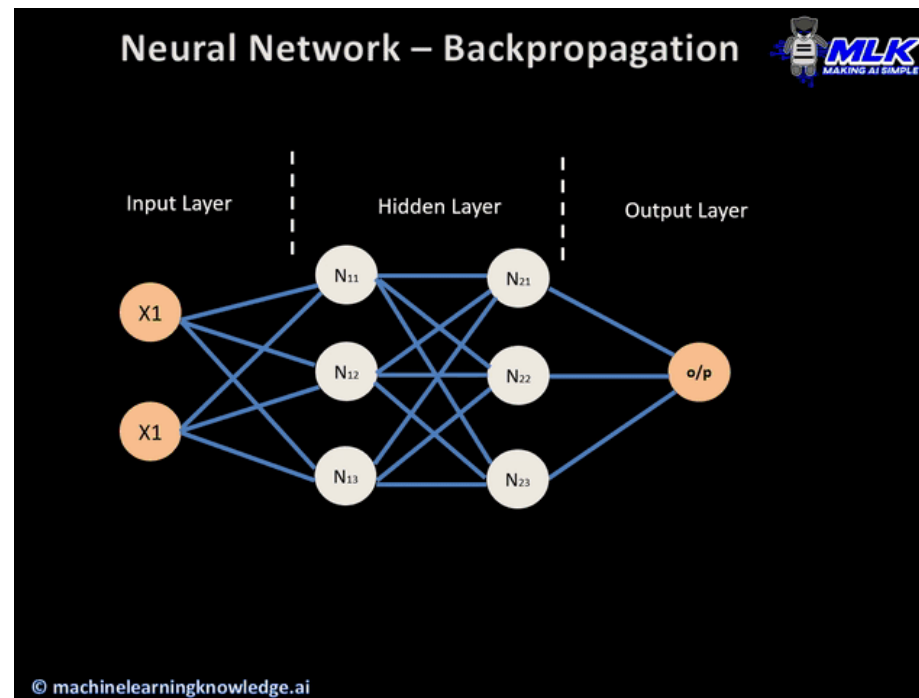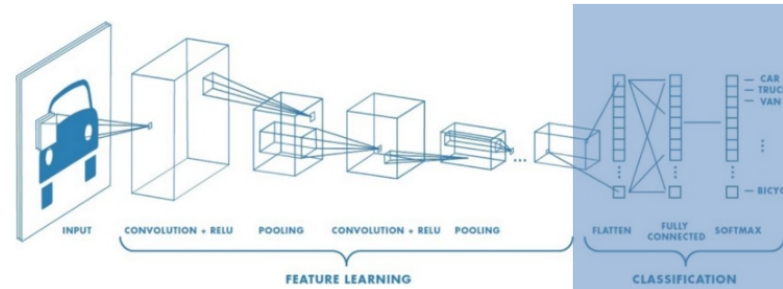
Convolutional Neural Network

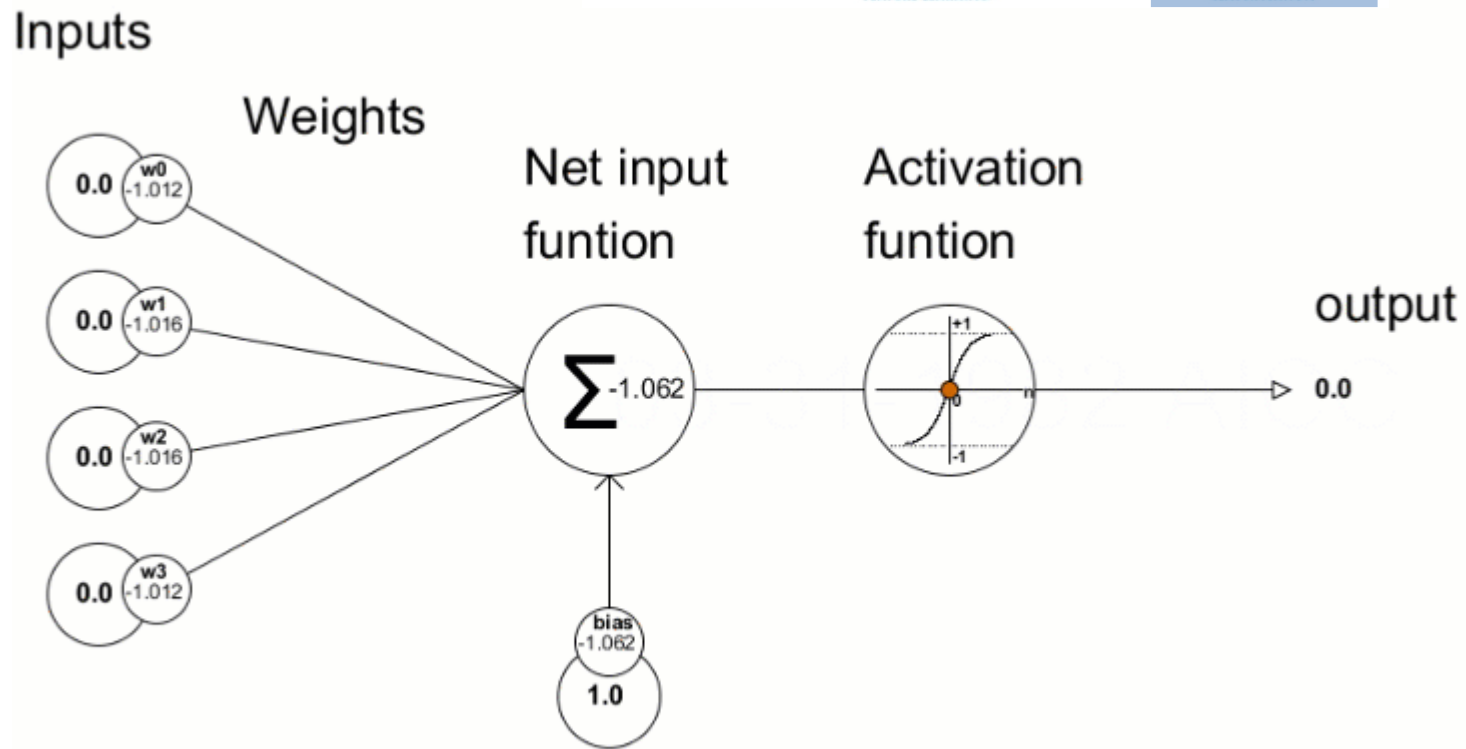- CNN

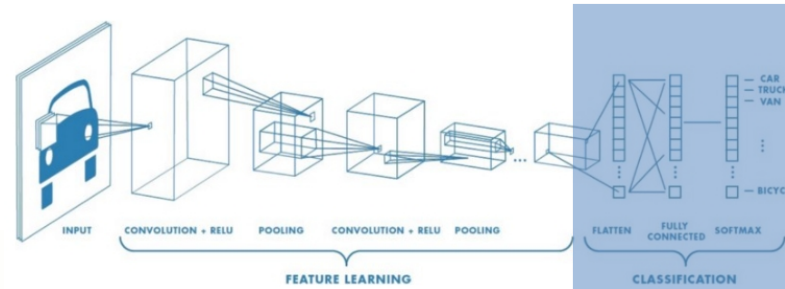# Convolutional Neural Network

- Feature Extraction

Convolutional Neural Network

- Classification
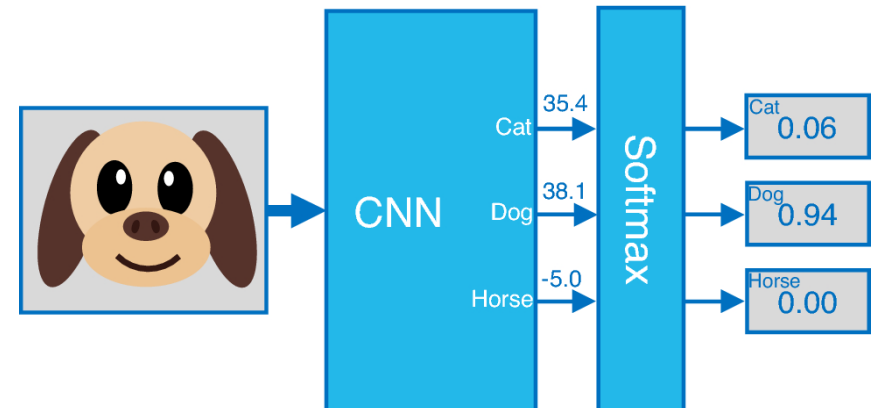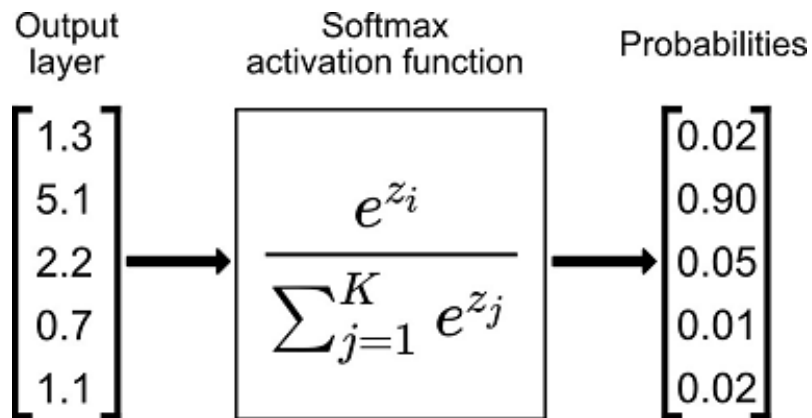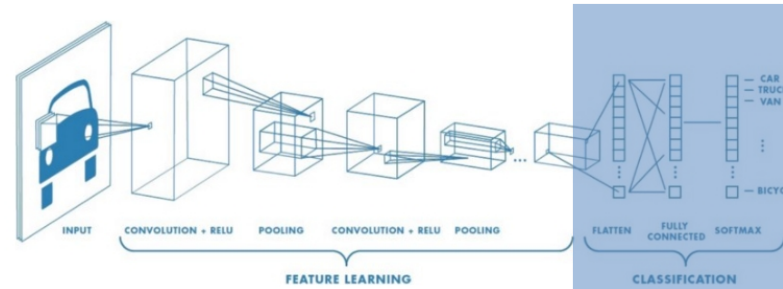
  - Forward and Back Propagation

Convolutional Neural Network

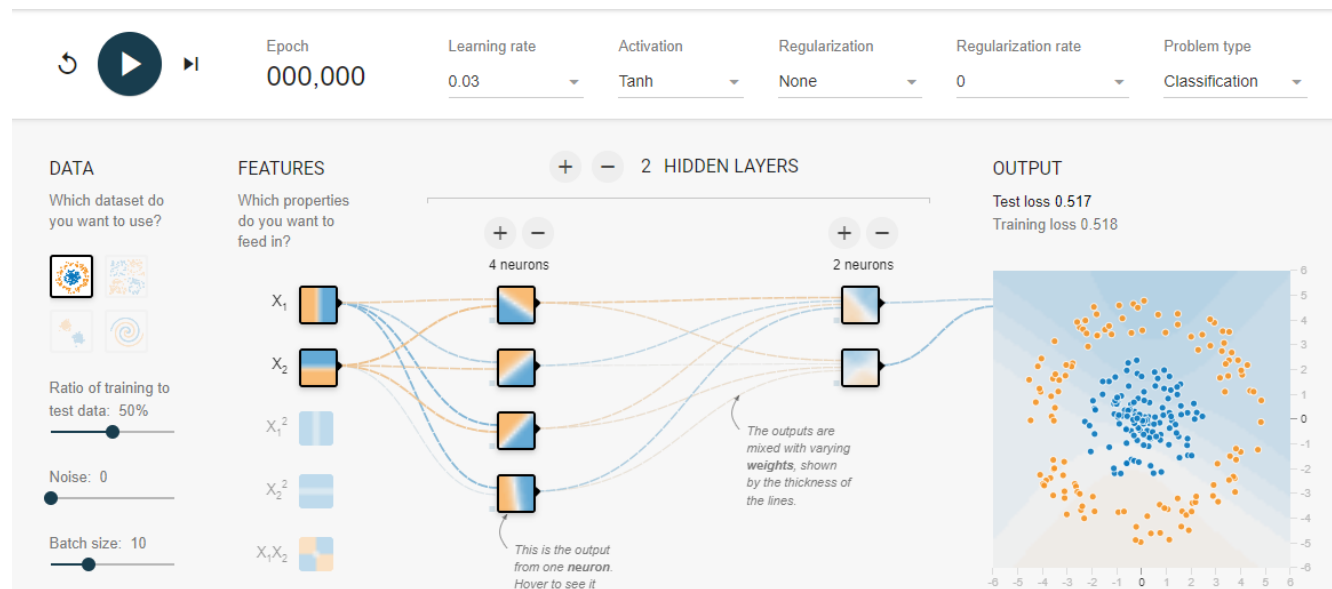- Forward and Back Propagation

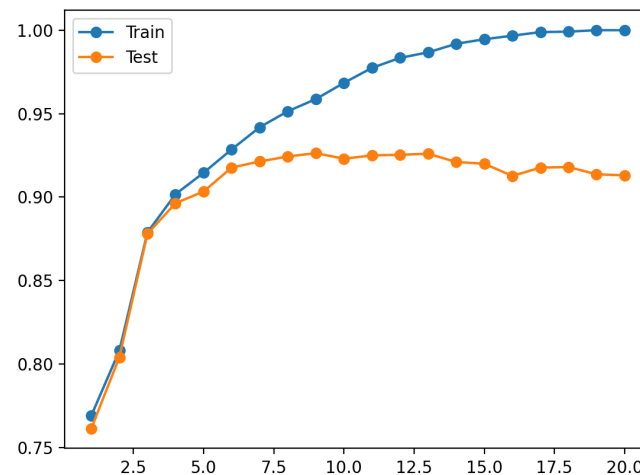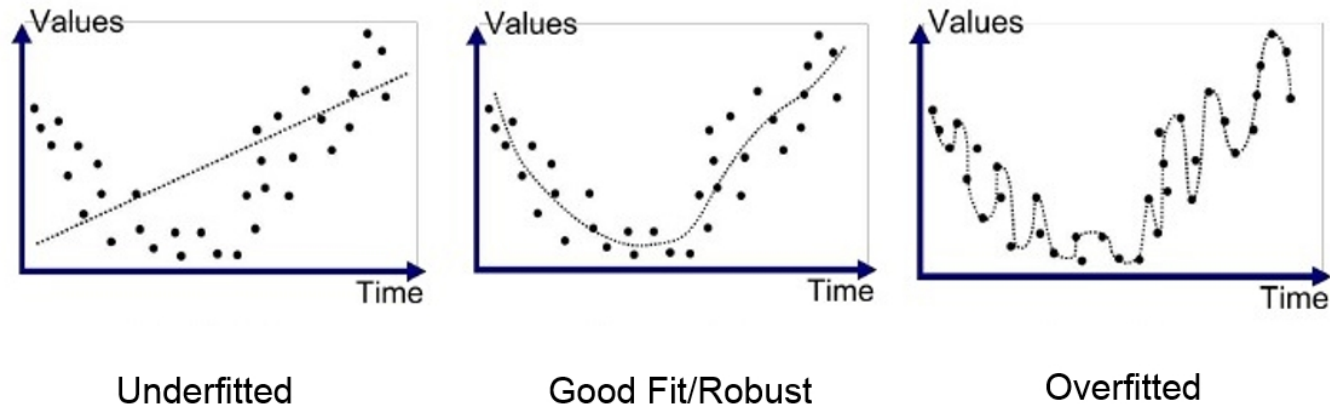# Convolutional Neural Network

- Softmax

Convolutional Neural Network

- Tensorflow Playground

https://playground.tensorflow.org/
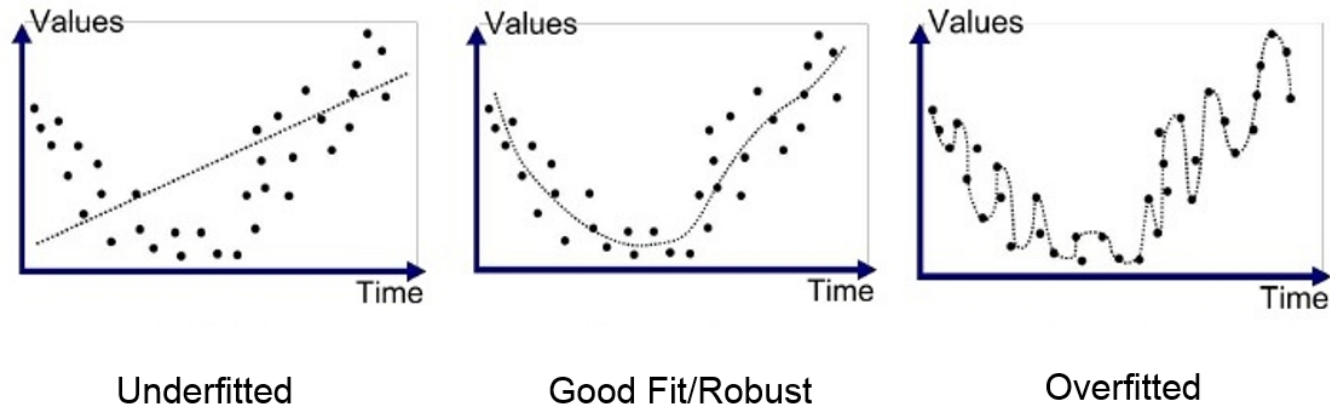
Overfitting

- Bad generalization

Underfitted   Good Fit/Robust   Overfitted

Overfitting

- Bad generalization

Underfitted   Good Fit/Robust   Overfitted
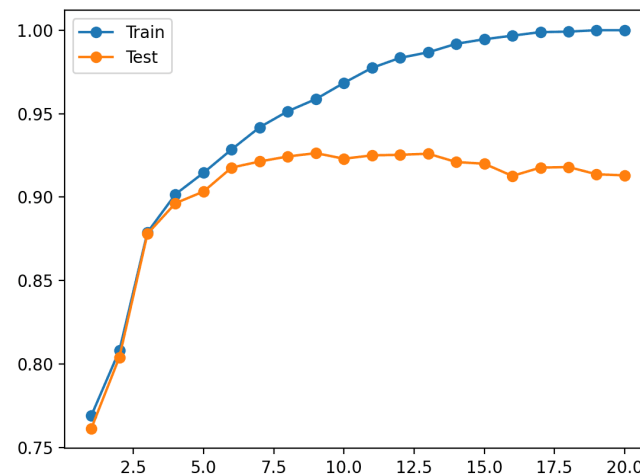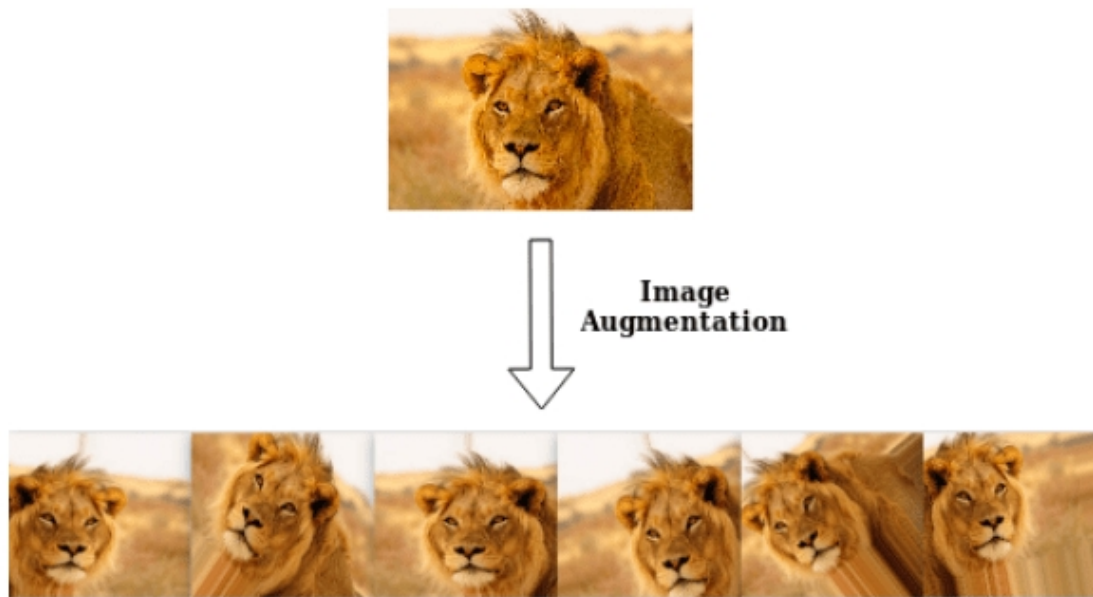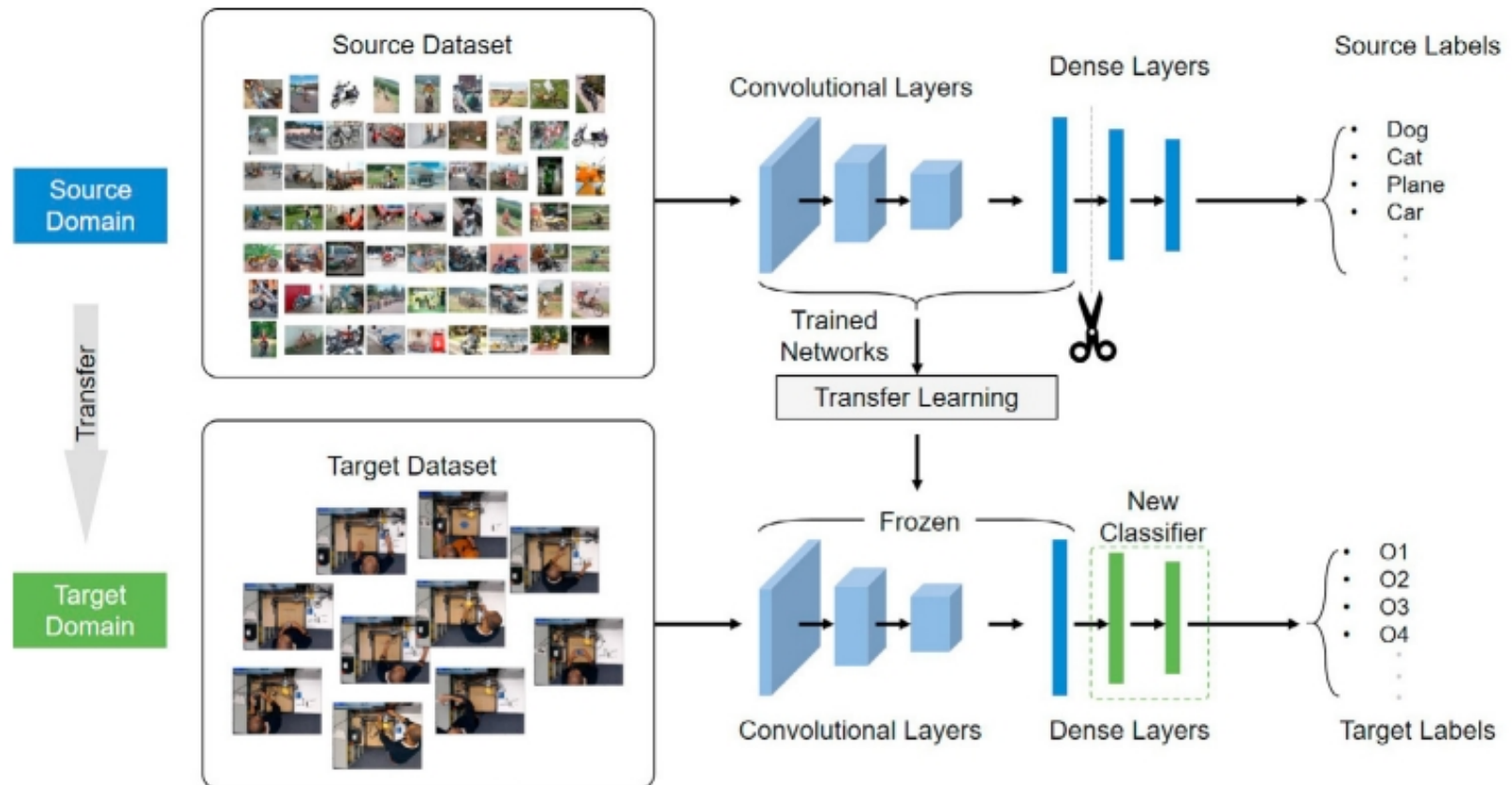
Data Augmentation

- Enlarge the dataset with synthetic samples

Transfer Learning

- Weight Sharing

- Feature Extraction weights are frozen (or not...) during learning

Let's Code

- [LINK]